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Tumor and metastasis suppression by the human RNASET2 gene.

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The region 6q27 from human chromosome 6 has been reported to contain one or more tumor suppressor genes on the basis of cytogenetic, molecular and functional studies. We have recently carried out a detailed analysis of a candidate gene from 6q27 to evaluate its putative role as a tumor suppressor gene involved in ovarian cancer pathogenesis. The RNASET2 gene was shown to behave as a class II tumor suppressor and abolish the tumorigenic potential of an ovarian cancer-derived cell line. In this study, we have started the cellular and biochemical characterization of RNASET2 and showed that it is a secreted glycoprotein. Moreover, we have extended our previous studies by evaluating the effect of RNASET2 on the metastatic behavior of the highly-invasive ovarian cancer cell line HEY3MET2. From such analysis, RNASET2 was found to significantly decrease the metastatic potential of this cell line in vivo. Moreover, RNASET2-mediated suppression of tumorigenesis and metastasis was not affected by a double point mutation targeted to the putative ribonuclease catalytic sites, suggesting that tumor suppression by RNASET2 is not mediated by its ribonuclease activity. The potential biological implications of this unexpected finding are discussed in relation to the current evolutionary models.